



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,227	10/17/2001	Dmitri E. Nikonov	42390.P10601	7399

7590 08/25/2004  
Jan Carol Little  
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP  
Seventh Floor  
12400 Wilshire Boulevard  
Los Angeles, CA 90025

EXAMINER

WONG, ERIC K

ART UNIT PAPER NUMBER

2883

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/982,227

Applicant(s)

NIKONOV ET AL.

Examiner

Eric Wong

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to <sup>amendment</sup> ~~communication(s)~~ filed on 14 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 15-18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-18 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to the rejection(s) of claim(s) 1 and 7 have been fully considered and are persuasive due to the amendments made to the independent claims to clarify the use of a silica-based amplifier. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of United States Patent Number 6,434,175 to Zah.

### ***Drawings***

2. The drawings received on 6/1/04 are accepted by the examiner.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 7-10 and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Number 6,434,175 to Zah.

As to claim 7, Zah discloses in figure 1, a semiconductor optical device comprising:

An integrated optical circuit having:

A set of optical amplifiers (118) formed in the integrated optical circuit being silica based (column 1, line 45) and coupled to the input waveguide elements; and

Art Unit: 2883

An arrayed waveguide grating (AWG) formed in the integrated optical circuit and coupled to the set of optical amplifiers (320);

A set of waveguide elements coupled to outputs of the set of optical amplifiers; and

The AWG having a star coupler coupled to the waveguide elements (column 6, line 61).

As to claims 8, and 9, the AWG is coupled to a set of optical amplifiers via a set of input/output waveguide elements.

As to claim 10, it would be inherent that an optical amplifier connected to waveguide elements would have a gain portion.

As to claim 15, each amplifier is made of varying lengths to compensate for the AWG (each amplifier operates on a specific free spectral range and tuned for a predetermined output).

As to claims 16-18, the set of optical amplifiers are coupled to combine pump light and optical signal light (components 310 are coupled to components 118).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zah and in view of common knowledge in the art.

Art Unit: 2883

As to claims 1 and 2, Zah discloses an integrated optical circuit with a set of amplifiers and AWGs, but fails to explicitly disclose a set of transceivers to couple a set of optical channels into an optical fiber that is input to the integrated circuit.

The use of transceivers is widely known in the art for transmitting, receiving or processing signals and that an optical fiber would be required to send such a signal to a device.

It would be obvious to one skilled in the art at the time the invention was made that a set of transceivers coupled to an optical fiber would be required to process and transmit signals in the optical communications system of Zah.

As to claim 3, rejection is based on same reasons given above for claim 13.

As to claim 4, rejection is based on same reasons given above for claim 10.

As to claim 6, a set of optical signals are demultiplexed and multiplexed in the integrated circuit (Abstract).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zah as applied to claim 1 above, and further in view of common practice in the art.

Zah discloses an integrated optical waveguide multiplexing device, but fails to explicitly disclose a demultiplexer coupled to an AWG.

It is common practice in the DWDM art to demultiplex signals that have been multiplexed in order to properly route and transmit optical signals.

It would have been obvious to one having ordinary skill at the time the invention was made to couple a demultiplexer to the multiplexer of Zah in order to efficiently and properly route and transmit optical signals of a DWDM system.

Art Unit: 2883

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zah as applied to claim 7 above and in further view of United States Patent Number 6,137,939 to Henry et al.

Zah discloses an integrated optical waveguide device with an arrayed waveguide grating formed in the integrated circuit, but fails to explicitly disclose a varying shape and width of the waveguide

Henry discloses an arrayed waveguide grating which has widths that vary in order to provide the most optimum performance in an arrayed waveguide grating (Column 3, line 36).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to vary the width of the waveguide to achieve optimum performance of a planar optical waveguide.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

Art Unit: 2883

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363.

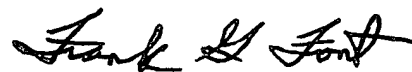
The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EW



Frank G. Font  
Supervisory Patent Examiner  
Technology Center 2800